

SECURITY INFORMATION

*Pack 1955*  
*001255***CONFIDENTIAL**

15 January 1953

MEMORANDUM FOR: See Distribution

SUBJECT: Burial Packaging (MD 39)

REFERENCE: Memorandum for Chiefs, WE, EE, NE, LA, SP and Training Division, Chief II IMA, and Chief of Procurement, from Chairman RDRB, subject "Progress Report on a Method for Packaging for Underground Storage, " dated 4 January 1951.

1. The referenced memorandum presented what was at that time considered to be the best methods of burial packaging using materials immediately available. This memorandum is written to recommend two methods of burial packaging and is intended to supercede the reference memorandum. The following two methods should protect the contents under burial conditions for a minimum of two years:

## a. Hot-Dip Method

## (1) Necessary Equipment

- a. Aluminum foil, type I, Specification JAN-B-148, titled "Barrier-Material, Aluminum Foil."
- b. Cellulose-acetate-butyrate formulation, type II, Specification JAN-C-149, titled "Compound, Protective, Strip-pable (Hot-Dipping)".
- c. Tank suitable for applying cellulose-acetate-butyrate formulation. Tanks available from the D.C. Cooper Company, Chicago, Illinois.
- d. Equipment to suitably clean and add preservative to material prior to packaging.

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## 2) Method of Packaging

The object is first thoroughly cleaned and a preservative added. Aluminum foil is conform wrapped around the object. After this preparation, the object is dipped in a hot liquid plastic, cellulose-acetate-butyrate, that has been heated in a specially designed tank to a temperature between 325° F and 350° F. Usually the double-dip method described under Method 1b in Joint Army-Navy Specification JAN-P-116, is employed. After the hot plastic has hardened around the object all possible sources of leaks, such as where the plastic overlaps as a result of double dipping, are smoothed over with the use of a hot iron. Items packaged according to the above shall be snugly stored in nailed wooden cases employing no liners. Experience has proven that liners may become punctured, resulting in pooling of water inside liners.

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## (3) Discussion of Hot Dip Method

Due to the high application temperatures of the plastic, the hot-dip method should not be used for items of an incendiary or explosive nature. As the plastic is not a perfect moisture vapor barrier the hot-dip method is not recommended for items having a great number of large irregularities or spaces containing compounds sensitive to moisture. The hot-dip method finds its greatest application with relatively smooth metal objects such as revolvers, machine guns, rifles, tripods, tools, and spare parts. The main advantage of the hot-dip method is that the resulting plastic coat is permanent and rugged, although it can be stripped from the item after being cut with a knife.

## b. Flexible Barrier Material Wrap Method

## (1) Necessary Equipment

- a. Equipment to suitably clean and apply preservative prior to packaging.
- b. Greaseproof barrier material, grade A, type I, class I, Specification JAN-B-121, titled "Barrier Materials, Greaseproof."
- c. Desiccant, grades A or B, Specification JAN-D-169, titled "Desiccants, (Activated)" and Specification JAN-P-116, titled "Packaging and Packing for Overseas Shipment - Preservation Methods Of."
- d. Cellulosic cushioning material, in accordance with Federal Specification UU-C-843 titled "Cushioning Materials, Cellulosic."
- e. Heat sealing machine, jaw type, described in Specification MIL-S-4461, titled "Sealing Machine, Heat, Bend and/or Portable."
- f. "Barrier Material, Flexible, Water-Vaporproof, Heavy Duty," in accordance with Picatinny Arsenal's Purchase Description PA-PD-274.

## (2) Method of Packaging

When applicable, the object is first thoroughly cleaned and a preservative added. The object is wrapped as tightly as possible in grade A, Greaseproof Barrier Material. Except for items such as propellant powder in which the moisture content must be maintained, desiccant is added to the package. The amount of desiccant depends on the size of the package. For highly corrosive metals such as gun barrels, or objects with intricate moving parts, the desiccant should be placed outside the grade A Greaseproof Barrier Material; in all other cases the desiccant shall be placed next to the object. Use of desiccants is described in Specification JAN-P-116. All sharp edges should be well padded with cellulosic cushioning material. The object is then carefully heat sealed inside Barrier Material, Flexible, Water-Vaporproof, Heavy Duty. Items packaged

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according to the above shall be snugly stored in nailed wooden cases employing no liner.

(3) Discussion of Flexible Barrier Material Wrap Method

The above Flexible Barrier Material Wrap Method has the advantage that it can be used to package any size or shaped object, and safely package explosives. The heat sealable Barrier Material, Flexible, Water-Vaporproof, Heavy Duty, has been recently developed for this Agency by the Army Ordnance Corps. The material consists of two layers of foil and two layers of fiber-thin nylon cloth, laminated by vinyl plastic. Tests have shown that the barrier material has a moisture-vapor transmission below the accuracy of present test measurements. The backing of this material has negligible decay during burial, and the material is capable of rough handling. Information to aid in procuring the Barrier Material, Flexible, Water-Vaporproof, Heavy Duty have been forwarded to the Procurement and Supply Office, attention: Chief, Coordination and Requirements Division. The barrier material, purchase description (PA-PD-274) will specify that the material be marked in the normal manner. For most Agency use, the material should be requisitioned specifying no markings.

2. As new methods of burial packaging are developed your offices will be so informed. It should be noted that the above methods of burial packaging can only maintain the contents usable when the packaged items themselves have a "shelf life" equal to or superior to the period of burial.

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Chief  
Mechanical Division, TSS

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